

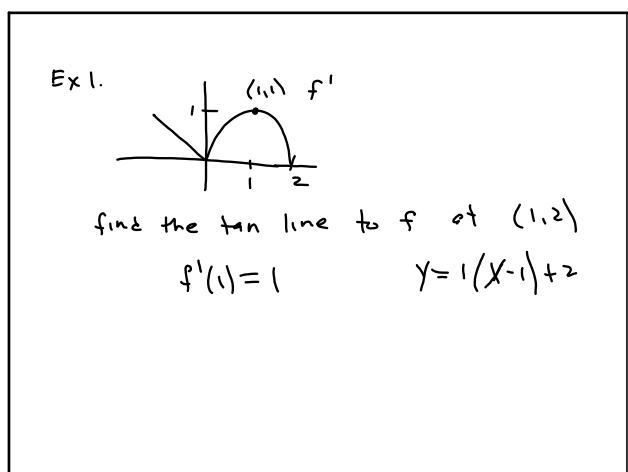
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pt-slope $y = m(x-x_1) + y_1$

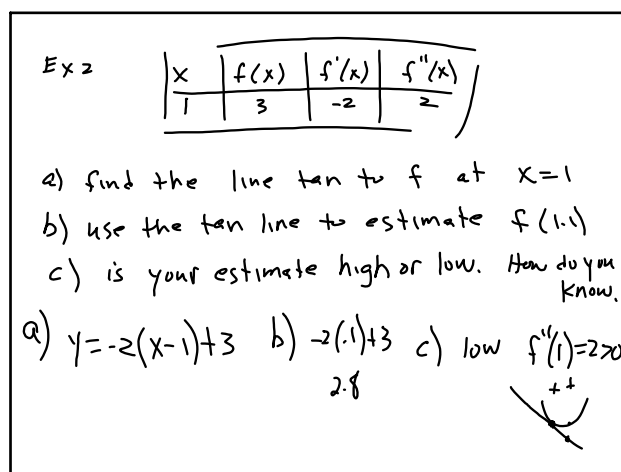
tan line $y = f'(a)(x-a) + f(a)$

1st order
Taylor series

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Ex 3 $y + 2 = \frac{x^2}{2} - 2 \sin y$ find tan line at $(2, 0)$

$$y' = x - 2 \cos y \cdot y'$$

$$y' + 2 \cos y \cdot y' = x$$

$$y'(1 + 2 \cos y) = x$$

$$y' = \frac{x}{1 + 2 \cos y} \Big|_{(2,0)} = \frac{2}{1 + 2 \cos 0} = \frac{2}{3}$$

$y = \frac{2}{3}(x-2) + 0$

Feb 21-10:40 AM

Ex 4. $x = t^2 - 4t + 1$ find tan line at $(-3, 8)$

$$y = t^3$$

$$8 = t^3$$

$$m = \frac{\frac{dy}{dt}}{\frac{dx}{dt}} = \frac{3t^2}{2t-4} \Big|_{t=2} = \frac{3 \cdot 4}{4-4} = \frac{12}{0}$$

$\underline{X = -3}$ vertical line $m = \infty$

Feb 21-10:47 AM